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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to an operation device to be held by a user in their hand when used.

2. Description of the Related Art

[0002] Various kinds of operation devices that are used for operating information processing apparatuses have been proposed. Those operation devices include an operation device to be held by a user in their hand when used, such as a controller for a video game console (see US 2007/0117625).

[0003] In a case where a button for operation input is provided on a surface of such an operation device, if the button is provided at a position at which the user places their thumb or finger when the user holds the operation device with their hand, the user does not need to move their thumb or finger onto the button every time they depresses the button, which results in easier operation. However, if the user holds the operation device with their thumb or finger placed on the button, there is a higher risk of erroneous operation in which the user depresses the button inadvertently.

[0004] US 2003/083114 A1 describes a navigation control unit for use with, for example, a wireless web access device to access web content over a computer network. The navigation control unit includes a housing that encloses circuitry having a processor. A connector secured to the body connects the navigation control unit to a wireless access device. At least one user control, such as a button, is retained by the body, and at least a portion of it is accessible from outside the body. The processor and circuitry generate a user command based on actuation of at least one of the user controls.

[0005] US 2006/197754 A1 describes an input device that has tactile features for assisting a user with locating an actuator and/or that has features for avoiding inadvertent actuation of an actuator. The input device may include a digital pen having an actuator disposed along a shaft of the pen at a location generally beyond the grip region, and/or an actuator recessed within an outer diameter of the pen shaft. The digital pen may include tactile features for indicating the actuator region of the pen within which the actuator is located. A method is also described for identifying an actuator or actuator region of an input device.

[0006] EP 0835676 A1 describes an expansion unit that is connected to a controller body including an analog direction key, a digital direction key, command buttons, command levers etc. An expansion unit including a photo emitting unit is connected to thereby make the controller cordless. An expansion unit includes a photo detecting unit, whereby shooting games in which an enemy on a

monitor screen can be shot can be played. An expansion unit including a vibration unit is connected, whereby a vibration is given to the controller body to make a shooting game more realistic. New functions can be added to the conventional controller, and the new functions can be added freely without making any change to the controller body.

[0007] US 2008/261693 A1 discloses a game interface that tracks the position of one or more game controllers in 3-dimensional space using hybrid video capture and ultrasonic tracking system. The captured video information is used to identify a horizontal and vertical position for each controller within a capture area. The ultrasonic tracking system analyzes sound communications to determine the distances between the game system and each controller and to determine the distances among the controllers. The distances are then analyzed by the game interface to calculate the depths within the capture area for each controller.

[0008] JP 2007 31354 A is concerned with providing a game operating device that is capable of being stably operated even by a single hand. To this end, a game operating device includes a long housing, on which a grip part is formed to be gripped by a hand in such a way as to be wrapped in the palm. The grip part is provided with a directional switch on the top face of the housing at a position operable by the thumb of the hand gripping the grip part, and behind it are arranged an A button, a start switch, a menu switch, a selection switch, an X button and a Y button, and further a plurality of LEDs for indicating controller numbers. On the undersurface, there is a recess including two inclined surfaces formed at positions corresponding to the directional switch and the A button, respectively, and a B button capable of being operated by the forefinger of the hand gripping the grip part is provided on the rear inclined surface.

SUMMARY OF THE INVENTION

[0009] The present invention has been made in view of the above-mentioned circumstances, and has an object to provide an operation device including an operation button which is easy to operate and unlikely to cause erroneous operation when the user uses the operation device by holding the operation device with their hand. The above objects are solved by the claimed matter according to the independent claim.

[0010] According to the present invention, there is provided an operation device to be held by a user with one hand when used, including: a recessed portion formed at a position at which at least one of a thumb and fingers is placed when the user holds the operation device; and a first button which is disposed at a bottom of the recessed portion and has a top surface adjacent to a rim portion forming a side surface of the recessed portion.

[0011] The operation device may further include a second button disposed at a position opposite to the first button on a surface of the operation device, at which an-

other one of the thumb and fingers of the user other than the at least one of the thumb and fingers is to be placed.

[0012] Further, the second button may include a button capable of detecting an amount by which the second button is depressed by the user.

[0013] Further, the operation device may further include another button which is disposed at a periphery of the recessed portion and used along with the first button.

[0014] Further, the other button which is disposed at a periphery of the recessed portion may be disposed at a position which corresponds to an end of the recessed portion in a longitudinal direction.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] In the accompanying drawings:

FIG. 1 is a schematic diagram illustrating a use example of an operation device according to an embodiment of the present invention;

FIG. 2 is a front view of the operation device according to the embodiment of the present invention;

FIG. 3 is a perspective view of the operation device according to the embodiment of the present invention when viewed from a front side thereof;

FIG. 4 is a perspective view of the operation device according to the embodiment of the present invention when viewed from a back side thereof;

FIG. 5 is a right side view of the operation device according to the embodiment of the present invention;

FIG. 6 is a sectional view of the operation device according to the embodiment of the present invention; and

FIG. 7 is a diagram illustrating a situation in which a user is holding the operation device according to the embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0016] Hereinbelow, with reference to the drawings, detailed description is given of an embodiment of the present invention.

[0017] FIG. 1 is a schematic diagram illustrating a use situation of an information processing system 1 including an operation device 10 according to the embodiment of the present invention. As illustrated in FIG. 1, the information processing system 1 includes the operation device 10 to be held by a user with their hand when used, and an information processing apparatus 20. The information processing apparatus 20 is, for example, a video game console, a personal computer, or the like, and is connected to an image capture apparatus 21 and a display apparatus 22.

[0018] The operation device 10 is capable of establishing communication with the information processing apparatus 20 via a wireless communication interface compliant with, for example, the Bluetooth standard. The user

of the information processing system 1 holds the operation device 10 with their hand to operate a button or the like provided on the operation device 10. In response to such an operation, content of the operation performed by the user is transmitted to the information processing apparatus 20 via the wireless communication interface. Further, in this embodiment, the operation device 10 includes a light emitting portion 12, and the light emitting portion 12 emits light according to an instruction from the information processing apparatus 20. The information processing apparatus 20 uses the image capture apparatus 21 to capture an image of the light emitted from the light emitting portion 12. Then, the information processing apparatus 20 analyzes the captured image to thereby identify a position of the operation device 10 which is viewed from the image capture apparatus 21. With this configuration, the user can perform operation input to the information processing apparatus 20 not only by operating a button or the like provided to the operation device 10, but also by moving the operation device 10 itself.

[0019] Hereinbelow, description is given of a configuration of the operation device 10 according to this embodiment.

[0020] FIGS. 2 to 5 are diagrams each illustrating an outer appearance of the operation device 10. FIG. 2 is a front view of the operation device 10. FIG. 3 is a perspective view of the operation device 10 when viewed from a front side thereof. FIG. 4 is a perspective view of the operation device 10 when viewed from a back side thereof. FIG. 5 is a right side view of the operation device 10. Further, FIG. 6 is a sectional view of the operation device 10 which is taken along a line VI-VI of FIG. 2. As illustrated in FIGS. 2 to 6, the operation device 10 includes a main body portion 11 and the light emitting portion 12, and the main body portion 11 is provided with a plurality of buttons on a surface thereof. The user holds the main body portion 11, and performs the operation input in which the user depresses the buttons with their thumb and fingers. Those buttons are described later in detail.

[0021] The main body portion 11 is formed in a cylindrical shape as a whole, and has the light emitting portion 12 attached at one end thereof. The surface of the cylindrical column forming the main body portion 11 is gently incurved toward the vicinity of the center in a longitudinal direction thereof. With this configuration, a portion in the vicinity of the center of the main body portion 11 is narrower than portions at both ends thereof. Conversely, at both ends of the main body portion 11, protruding portions 11a and 11b that protrude outward compared to the portion in the vicinity of the center of the main body portion 11 are respectively formed.

[0022] The light emitting portion 12 includes a spherical-shaped outer shell 12a formed of a light transmissive material, such as a silicone resin, and a plurality of LEDs 12b disposed thereinside. In this embodiment, three LEDs 12b corresponding to the three primary colors of light each emit light with an intensity corresponding to an instruction from the information processing apparatus 20,

thereby enabling the light emitting portion 12 to emit light with various colors. The image capture apparatus 21 captures an image of the light emitted from the light emitting portion 12, and accordingly, the information processing apparatus 20 identifies a direction of the operation device 10 with respect to the image capture apparatus 21. In addition, based on a size of light of the light emitting portion 12 in the captured image, a distance from the image capture apparatus 21 to the operation device 10 is calculated. Based on such information regarding the direction and the distance of the operation device 10, the information processing apparatus 20 performs various kinds of information processing. With this configuration, by holding and moving the operation device 10 with their hand, the user can perform the operation input to the information processing apparatus 20.

[0023] Note that inside the main body portion 11, various kinds of detection means for detecting attitude and movement of the operation device 10, such as an acceleration sensor, a gyroscope, and a geomagnetic sensor, may be provided. By combining the position and the size of the light emitting portion 12 in the captured image obtained by the image capture apparatus 21, using information output by such detection means, it is possible to identify the attitude and the movement of the operation device 10 with more accuracy.

[0024] Further, the one end of the main body portion 11 to which the light emitting portion 12 is attached has a larger diameter than the outer shell 12a in a cross section perpendicular to the longitudinal direction of the main body portion 11. Specifically, when the operation device 10 is viewed from above, the perimeter of the protruding portion 11a appears as surrounding the perimeter of the outer shell 12a. Further, as described above, the portion in the vicinity of the center of the main body portion 11 which is to be held by the user is formed to be narrower than the protruding portion 11a. Owing to this configuration, when the user holds the portion in the vicinity of the center of the main body portion 11 with their hand, the user's thumb and fingers are hidden behind the protruding portion 11a, and hence the user's thumb and fingers are less likely to be captured as one integrated entity with the light emitting portion 12 in an image captured by the image capture apparatus 21. This accordingly prevents a problem that, in analyzing the position of the light emitting portion 12 in the captured image, the information processing apparatus 20 fails to discriminate the light emitting portion 12 from a nail of the user's thumb or finger, which decreases analysis accuracy.

[0025] A main button 13, an analog button 15, auxiliary buttons 16a to 16d, a start button 17, a select button 18, and a power button 19 are disposed on an enclosure surface of the main body portion 11. Hereinbelow, description is given of disposition of those buttons.

[0026] The main button 13 is disposed, on the front side of the operation device 10, at a position at which the thumb is placed when the user holds the operation device 10 with their hand. Further, the main button 13 is disposed

at a bottom of a recessed portion 14 formed at the front of the main body portion 11, and a top surface of the main button 13 is adjacent to a rim portion 14a forming a side surface of the recessed portion 14. Specifically, the top surface of the main button 13 is formed so as to be continuous with the adjacent rim portion 14a, and is positioned lower than the surface of the main body portion 11 which surrounds the recessed portion 14. In this embodiment, the main button 13 corresponds to a first button. The main button 13 is assigned a function associated with an instruction expected to be given particularly frequently by the user. Specifically, examples of such an instruction include a confirmation instruction for confirming the contents of instructions given so far by the user.

[0027] The recessed portion 14 has, when viewed from the front of the operation device 10, an approximately rectangular shape with four corners thereof rounded, and a longitudinal direction thereof (that is, long-side direction of a rectangle) coincides with the longitudinal direction of the operation device 10. In addition, the short side of the rectangle has a length which corresponds to a width of a person's thumb, thereby making it easy to place the thumb within the recessed portion 14. The side surface of the recessed portion 14 may be an inclined surface which inclines toward the outside of the recessed portion 14 to form a mortar shape.

[0028] Here, excluding the power button 19, the buttons including the main button 13 are disposed, on the side surface of the main body portion 11, in a cylindrical area ranging from a top end of the recessed portion 14 (end on the side of the light emitting portion 12) to a bottom end thereof (end on the side of the bottom). The user holds the narrowed portion in the vicinity of the center of the main body portion 11 by mainly using their palm, middle finger, ring finger, and little finger. Then, the user uses their thumb and index finger to operate the buttons disposed in the cylindrical area between the portion in the vicinity of the center of the main body portion 11 and the light emitting portion 12.

[0029] The analog button 15 is disposed on the back side of the operation device 10 (that is, side opposite to the side where the main button 13 is disposed) so as to oppose the main button 13. The user holds the portion in the vicinity of the center of the main body portion 11 and places their thumb onto the main button 13 as described above, and also places their index finger onto the analog button 15. In this case, the thumb and the index finger are in a state of facing each other with the main body portion 11 sandwiched therebetween. The user performs the operation input by depressing the main button 13 and the analog button 15 with their thumb and index finger, respectively. In this embodiment, the analog button 15 corresponds to a second button.

[0030] Moreover, instead of simply outputting binary information indicating whether or not the button is depressed by the user, the analog button 15 is capable of detecting to what extent the button is depressed by the user and outputting information indicating the depressed

amount. With this configuration, the user can input quantitative information by depressing the analog button 15 lightly or heavily. Note that in order to enable such operation input that corresponds to the depressed amount, the analog button 15 has a larger movable range than the main button 13, and requires a larger stroke amount to be depressed fully than the main button 13.

[0031] When the user holds the operation device 10 with their thumb placed on the main button 13, if the main button 13 protrudes from the surface of the main body portion 11, there is a higher risk of the user mistakenly depressing the main button 13 with their thumb. Particularly, in this embodiment, there is a case in which the user performs the operation input by moving the operation device 10 itself in a state where the light emitting portion 12 is emitting light, which is described above. Accordingly, when the user is performing such operation, there is a fear that the user will mistakenly depresses the main button 13. Further, as described above, when the user is holding the main body portion 11, the user's thumb and index finger are placed on the surface of the main body portion 11 so as to oppose each other. In this embodiment, a button (analog button 15) is also provided at the position at which the index finger is to be placed. Further, because the analog button 15 is a device for performing the operation input which corresponds to the depressed amount as described above, the analog button 15 may not be operated constantly with light force and there is a case where the analog button 15 should be depressed with intense force. Accordingly, there is a fear that, when the user attempts to operate the analog button 15, the user may unconsciously move their thumb and mistakenly depresses the main button 13.

[0032] In view of this, in this embodiment, as described above, the main button 13 is disposed at the bottom of the recessed portion 14 so that the top surface of the main button 13 is located adjacent to the rim portion 14a. When the user holds the operation device 10, the user puts their thumb across a portion in which the main button 13 is adjacent to the rim portion 14a in such a manner that the thumb rests on the rim portion 14a. FIG. 7 is a diagram illustrating a situation in which the user is holding the main body portion 11 as described above. If the user holds the main body portion 11 as described above, the user only needs to apply force toward the rim portion 14a with their thumb when the user depresses the analog button 15. Consequently, the user can operate the analog button 15 with an arbitrary force without mistakenly operating the main button 13. Further, because the user places their thumb on the main button 13, the user does not need to shift their thumb significantly in operating the main button 13.

[0033] In particular, in a case where the user places their thumb along the longitudinal direction of the recessed portion 14, a movement of the thumb in operating the main button 13 is also made along this longitudinal direction. Therefore, of the side surfaces of the recessed portion 14, surfaces perpendicular to the longitudinal di-

rection of the recessed portion 14 (that is, surfaces along the short sides of the rectangle) function as the rim portion 14a on which the user's thumb is placed. Note that if the rim portion 14a has an inclined surface toward the outside of the recessed portion 14 as described above, it becomes easier for the user to place their thumb over the rim portion 14a and the main button 13. Here, in this embodiment, the top surface of the main button 13 and the rim portion 14a are formed in a continuous manner, but as long as the top surface of the main button 13 and the rim portion 14a are close enough to each other for the user to be able to place their thumb across the main button 13 and the rim portion 14a, there may be a gap therebetween.

[0034] Around the recessed portion 14, the four auxiliary buttons 16a to 16d are disposed so as to surround the main button 13. Specifically, those auxiliary buttons 16a to 16d are used for various kinds of operation input along with the main button 13 during execution of an application program such as a game application program. Each of the auxiliary buttons 16a to 16d is disposed at a position which corresponds to one of the ends of the recessed portion 14 formed in the rectangular shape in the longitudinal direction. Specifically, the auxiliary buttons 16a and 16b are disposed at positions displaced rightward and leftward (that is, directions substantially perpendicular to the longitudinal direction of the recessed portion 14), respectively, from the upper end (end on the side of the light emitting portion 12) of the recessed portion 14. Similarly, the auxiliary buttons 16c and 16d are disposed at positions displaced rightward and leftward, respectively, from the lower end (end on the side of the bottom) of the recessed portion 14. The user can recognize the positions of both ends of the recessed portion 14 in the longitudinal direction by touching the rim portion 14a with their thumb placed within the recessed portion 14. Accordingly, by shifting the thumb laterally from the position of one of the two ends of the recessed portion 14 to the position of an auxiliary button which the user desires to operate, it is possible for the user to move their thumb and operate the auxiliary button with ease without actually taking a look at the operation device 10 to check. In other words, the rim portion 14a serves to prevent the user from performing erroneous operation with respect to the main button 13 by enabling the user's thumb to be placed on the rim portion 14a along with the main button 13 as described above, and also functions as a guide portion when the user feels for the auxiliary buttons. In particular, when the user displaces their thumb along the longitudinal direction of the recessed portion 14, the user can recognize the positions of the both ends of the recessed portion 14 by touching, of the side surfaces of the recessed portion 14, the surfaces perpendicular to the longitudinal direction of the recessed portion 14 (that is, surfaces along the short sides of the rectangle). As a result, the side surface of the recessed portion 14 which is formed in such a direction functions as the guide portion for the user to recognize the positions of the auxiliary

buttons.

[0035] Here, the auxiliary buttons 16c and 16d disposed at the positions corresponding to the lower end (end closer to the portion at which the user holds the main body portion 11) of the recessed portion 14 are disposed at positions relatively closer to the recessed portion 14, compared to the auxiliary buttons 16a and 16b disposed at the positions corresponding to the end farther from the portion at which the user holds the main body portion 11. With this configuration, for example, the user can operate the auxiliary button 16a by swinging their thumb from the main button 13 to the same extent as a case where the user operates the auxiliary button 16c.

[0036] The start button 17 and the select button 18 are used for starting a game, selecting a game, pausing, or the like during execution, for example, of a game application program. For this reason, in general, those buttons are not used frequently during the execution of a game. Accordingly, in this embodiment, those two buttons are disposed on the right side surface and the left side surface of the main body portion 11, respectively. Specifically, the start button 17 and the select button 18 are disposed, in a cross section perpendicular to the longitudinal direction of the main body portion 11, so as to oppose each other on a line substantially perpendicular to a line connecting the main button 13 and the analog button 15. With this configuration, when the user holds the operation device 10 by placing their thumb and finger at the positions of the main button 13 and the analog button 15, respectively, the positions of the start button 17 and the select button 18 are located away from the positions at which the user's thumb and finger are placed. Therefore, the fear of the user mistakenly depressing the start button 17 or the select button 18 during the execution of the application program can be reduced.

[0037] In addition, upper ends of both the start button 17 and the select button 18 are substantially identical in height to upper ends of the main button 13 and the analog button 15. With this configuration, along an upper end of a cylindrical area in which the buttons are disposed, the upper ends of the main button 13, the analog button 15, the auxiliary buttons 16a and 16b, the start button 17, and the select button 18 are aligned on substantially the same straight line. Therefore, by rotating the main body portion 11 in the palm or moving the thumb or the index finger significantly, similarly to the case of the auxiliary buttons 16a and 16b, the user can operate the start button 17 and the select button 18 without directly taking a look at the button to check its position.

[0038] The power button 19 is disposed, at the front of the main body portion 11, below the position at which the main button 13 is disposed. The power button 19 is used for powering on the operation device 10 to start operation thereof or powering off the operation device 10 to terminate the operation. In other words, unlike the other buttons, the power button 19 is not operated during the execution of the application program or the like.

[0039] Further, on the bottom side of the main body portion 11 (that is, side opposite to the side where the light emitting portion 12 is attached), there is provided a universal serial bus (USB) connector (not shown) which is compliant with the USB standard. In addition, a portion surrounding the USB connector is provided with a removable cover, and the inside of the portion which is exposed by removing the cover is provided with extension connectors for connecting other equipment. Further, the cover is provided with a through hole through which a string such as a strap is passed.

[0040] Here, as described above, the main body portion 11 is incurved toward the vicinity of the center thereof, and the protruding portions 11a and 11b are formed at both ends thereof. Therefore, when the operation device 10 is laid on its side on a floor surface, the protruding portions 11a and 11b come into contact with the floor surface, and a portion therebetween is not brought into direct contact with the floor surface. Further, the analog button 15, the auxiliary buttons 16a to 16d, and the like may be formed so that heights thereof do not exceed a curved surface formed by connecting the perimeters of the protruding portions 11a and 11b to each other. With this configuration, as well as the main button 13 formed inside the recessed portion 14, the other buttons are also prevented from being mistakenly depressed when the operation device 10 is laid on its side on the floor.

[0041] According to the embodiment of the present invention described above, when the user holds the operation device 10 between their thumb and other fingers, the user holds the operation device 10 with their thumb and finger placed on the main button 13 and the analog button 15, respectively. By doing so, the user does not need to move their thumb or fingers significantly every time the user operates those buttons, which results in easier operation. In addition, the main button 13 is disposed so that the main button 13 is adjacent to the rim portion 14a which forms, inside the recessed portion 14, the side surface of the recessed portion 14. Therefore, even when the user holds the operation device 10 with their thumb placed on the main button 13, the user can be prevented from mistakenly operating the main button 13.

[0042] Here, in the description given above, the main button 13 to be operated with the thumb is disposed inside the recessed portion 14, but the present invention is not limited thereto. A button to be operated with another finger may be disposed inside a recessed portion formed on the enclosure surface of the operation device 10.

Claims

1. An operation device (10) for communicating wirelessly with an external information processing apparatus (20), the operation device being configured to be held by a user with one hand when used, comprising:

a main body portion (11) formed in a cylindrical shape as a whole and being incurved toward the center of the main body portion (11) in a longitudinal direction of the main body portion (11) such that the width of the main body portion (11) is smaller in the center of the main body portion than at both end portions (11a, 11b) of the main body portion (11);

a light emitting portion (12), which is attached at one end portion (11a) of the main body portion (11) of the operation device (10) and configured to emit light according to an instruction from the information processing apparatus (20);

a recessed portion (14) formed at a position of the main body portion (11) at which a thumb of the user is placed when the user holds the operation device (10); and

a first button (13) which is disposed at a bottom of the recessed portion (14) and has a top surface adjacent to a rim portion (14a) forming a side surface of the recessed portion (14); and a second button (15) disposed at a position opposite to the first button (13) on a surface of the main body portion (11) of the operation device (10) formed at a position at which an index finger is placed when the user holds the operation device (10) with the user's thumb placed at the position of the recessed portion (14), wherein the main body portion (11) is sandwiched between the first button (13) and the second button (15),

the end portion (11a) at which the light emitting portion (12) is attached has a larger diameter than the light emitting portion (12) in a cross section perpendicular to the longitudinal direction of the main body portion (11);

the second button (15) has such a height that it does not protrude beyond a curved surface connecting the perimeters of the end portions (11a, 11b) of the main body portion (11);

the first button (13) is configured to be operated by the user's thumb; and

the second button (15) is configured to be operated by the user's index finger.

2. The operation device (10) according to claim 1, wherein the second button (15) comprises a button capable of detecting an amount by which the second button (15) is depressed by the user.
3. The operation device (10) according to claim 1, further comprising another button (16a, 16b, 16c, 16d) which is disposed at a periphery of the recessed portion (14) and used along with the first button (13).
4. The operation device (10) according to claim 3, wherein the other button (16a, 16b, 16c, 16d) which is disposed at a periphery of the recessed portion

(14) is disposed at a position which corresponds to an end of the recessed portion (14) in a longitudinal direction.

Patentansprüche

1. Betriebsgerät (10) zum drahtlosen Kommunizieren mit einer externen Informationsverarbeitungsvorrichtung (20), wobei das Betriebsgerät dafür ausgelegt ist, bei Verwendung durch einen Benutzer mit einer Hand gehalten zu werden, Folgendes umfassend:

einen Hauptteil (11), gänzlich in zylindrischer Gestalt ausgebildet und in Längsrichtung des Hauptteils (11) einwärts zur Mitte des Hauptteils (11) gekrümmt, so dass die Breite des Hauptteils (11) in der Mitte des Hauptteils kleiner ist als an beiden Endteilen (11a, 11b) des Hauptteils (11); einen lichtemittierenden Teil (12), welcher an einem Endteil (11a) des Hauptteils (11) des Betriebsgeräts (10) angebracht ist, und ausgelegt ist zum Emittieren von Licht gemäß einer Anweisung von der Informationsverarbeitungsvorrichtung (20);

einen eingesenkten Teil (14), ausgebildet an einer Position des Hauptteils (11), an welcher ein Daumen des Benutzers platziert ist, wenn der Benutzer das Betriebsgerät (10) hält; und

eine erste Taste (13), welche an einem Boden des eingesenkten Teils (14) angeordnet ist und eine an einer Seitenoberfläche des eingesenkten Teils (14) ausbildenden Randteil (14a) angrenzende obere Oberfläche aufweist; und eine zweite Taste (15), angeordnet an einer Position gegenüber der ersten Taste (13) auf einer Oberfläche des Hauptteils (11) des Betriebsgeräts (10),

ausgebildet an einer Position, an welcher ein Zeigefinger platziert ist, wenn der Benutzer das Betriebsgerät (10) hält, wobei der Daumen des Benutzers an der Position des eingesenkten Teils (14) platziert ist, wobei

der Hauptteil (11) zwischen der ersten Taste (13) und der zweiten Taste (15) eingefasst ist, der Endteil (11a), an welchem der lichtemittierende Teil (12) angebracht ist, in einem Querschnitt senkrecht zur Längsrichtung des Hauptteils (11) einen größeren Durchmesser als der lichtemittierende Teil (12) aufweist;

die zweite Taste (15) eine derartige Höhe aufweist, dass sie nicht über eine die Umfangslinien der Endteile (11a, 11b) des Hauptteils (11) verbindende gekrümmte Oberfläche hinaus hervorsteht;

die erste Taste (13) dafür ausgelegt ist, durch den Daumen des Benutzers betätigt zu werden;

und
die zweite Taste (15) dafür ausgelegt ist, durch
den Zeigefinger des Benutzers betätigt zu wer-
den.

2. Betriebsgerät (10) nach Anspruch 1, wobei die zwei-
te Taste (15) eine Taste umfasst, die fähig ist zum
Detektieren einer Größe, um welche die zweite Tas-
te (15) durch den Benutzer heruntergedrückt wird. 5
3. Betriebsgerät (10) nach Anspruch 1, ferner umfas-
send eine andere Taste (16a, 16b, 16c, 16d), welche
an einer Umfangslinie des eingesenkten Teils (14)
angeordnet ist und zusammen mit der ersten Taste
(13) verwendet wird. 10
4. Betriebsgerät (10) nach Anspruch 3, wobei die and-
ere Taste (16a, 16b, 16c, 16d), welche an einer
Umfangslinie des eingesenkten Teils (14) angeord-
net ist, an einer Position angeordnet ist, welche ei-
nem Ende des eingesenkten Teils (14) in einer
Längsrichtung entspricht. 15 20

Revendications

1. Dispositif de commande (10) destiné à communi-
quer sans fil avec un appareil de traitement d'infor-
mations externe (20), le dispositif de commande
étant configuré pour être tenu par un utilisateur d'une
main lorsqu'il est utilisé, comprenant :

une partie de corps principal (11) façonnée dans
une forme d'ensemble cylindrique et étant incur-
vée vers le centre de la partie de corps principal
(11) dans une direction longitudinale de la partie
de corps principal (11) de telle sorte que la lar-
geur de la partie de corps principal (11) est plus
petite au centre de la partie de corps principal
qu'à deux parties d'extrémité (11a, 11b) de la
partie de corps principal (11) ;
une partie émettant de la lumière (12), qui est
attachée à une partie d'extrémité (11a) de la par-
tie de corps principal (11) du dispositif de com-
mande (10) et configurée pour émettre de la lu-
mière en fonction d'une instruction provenant de
l'appareil de traitement d'informations (20) ;
une partie encastrée (14) formée à une position
de la partie de corps principal (11) à laquelle un
pouce de l'utilisateur est placé quand l'utilisateur
tient le dispositif de commande (10) ; et
un premier bouton (13) qui est disposé au fond
de la partie encastrée (14) et a une surface su-
périeure adjacente à une partie de rebord (14a)
formant une surface latérale de la partie encas-
trée (14) ; et
un deuxième bouton (15) disposé à une position
à l'opposé du premier bouton (13) sur une sur-

face de la partie de corps principal (11) du dis-
positif de commande (10), formé à une position
à laquelle un index est placé quand l'utilisateur
tient le dispositif de commande (10) avec le pou-
ce de l'utilisateur placé à la position de la partie
encastrée (14), dans lequel
la partie de corps principal (11) est intercalée
entre le premier bouton (13) et le deuxième bou-
ton (15) ;
la partie d'extrémité (11a) au niveau de laquelle
la partie émettant de la lumière (12) est attachée
a un plus grand diamètre que la partie émettant
de la lumière (12) dans une section transversale
perpendiculaire à la direction longitudinale de la
partie de corps principal (11) ;
le deuxième bouton (15) a une hauteur telle qu'il
ne fait pas saillie au-delà d'une surface incurvée
reliant les périmètres des parties d'extrémité
(11a, 11b) de la partie de corps principal (11) ;
le premier bouton (13) est configuré pour être
activé par le pouce de l'utilisateur ; et
le deuxième bouton (15) est configuré pour être
activé par l'index de l'utilisateur.

2. Dispositif de commande (10) selon la revendication
1, dans lequel le deuxième bouton (15) comprend
un bouton capable de détecter une quantité de la-
quelle le deuxième bouton (15) est enfoncé par l'uti-
lisateur. 25 30
3. Dispositif de commande (10) selon la revendication
1, comprenant en outre un autre bouton (16a, 16b,
16c, 16d) qui est disposé à une périphérie de la partie
encastrée (14) et utilisé avec le premier bouton (13). 35
4. Dispositif de commande (10) selon la revendication
3, dans lequel l'autre bouton (16a, 16b, 16c, 16d)
qui est disposé à une périphérie de la partie encas-
trée (14) est disposé à une position qui correspond
à une extrémité de la partie encastrée (14) dans une
direction longitudinale. 40 45 50 55

FIG. 1

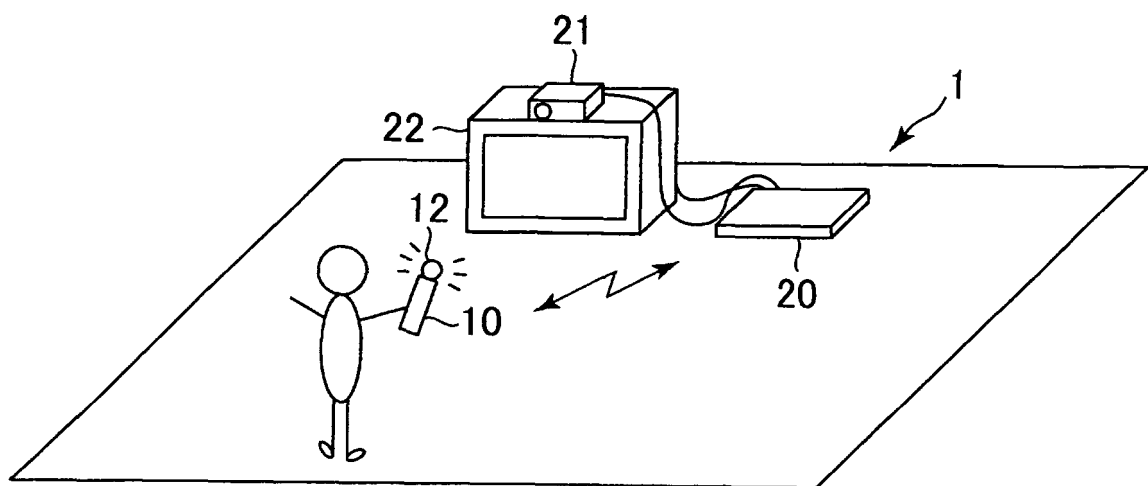


FIG.2

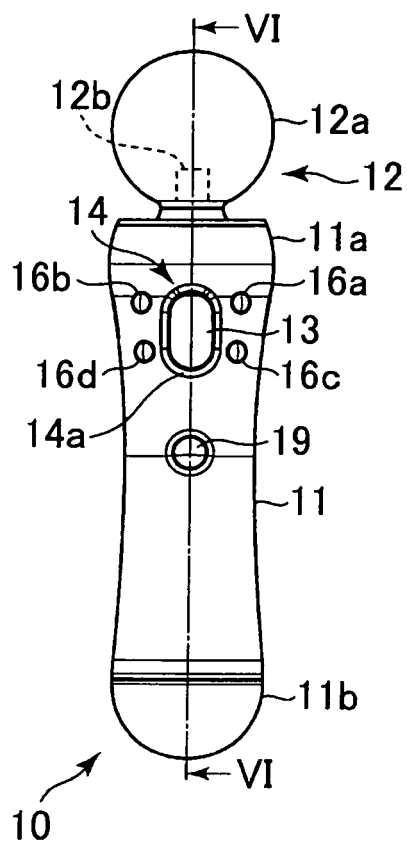


FIG.3

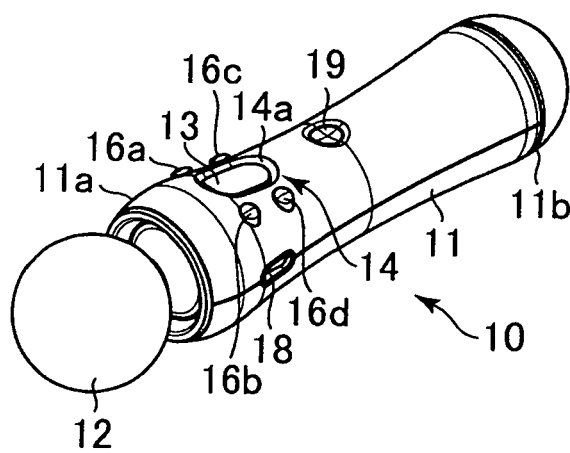


FIG.4

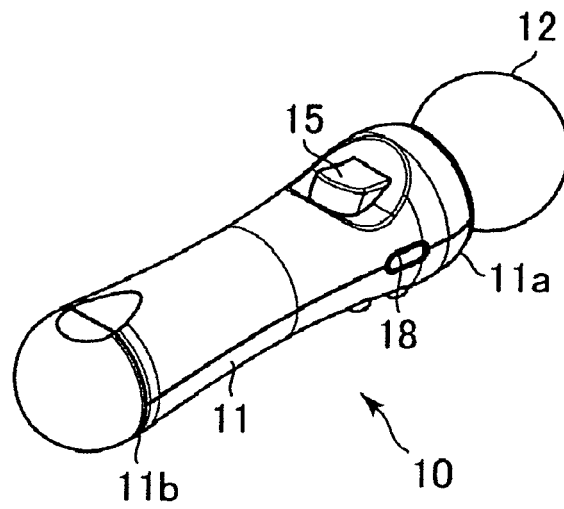


FIG.5

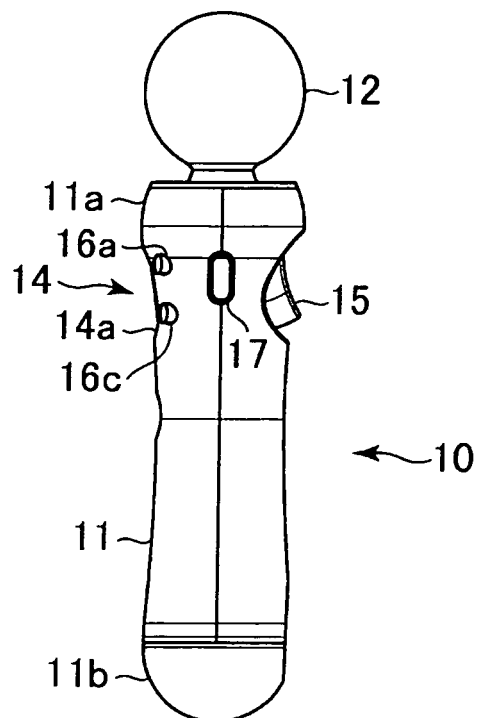


FIG.6

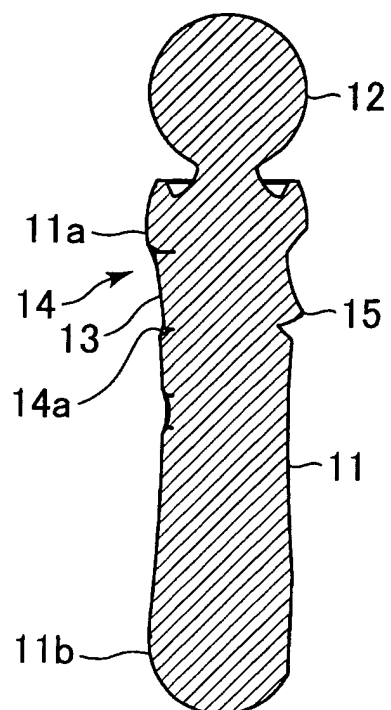
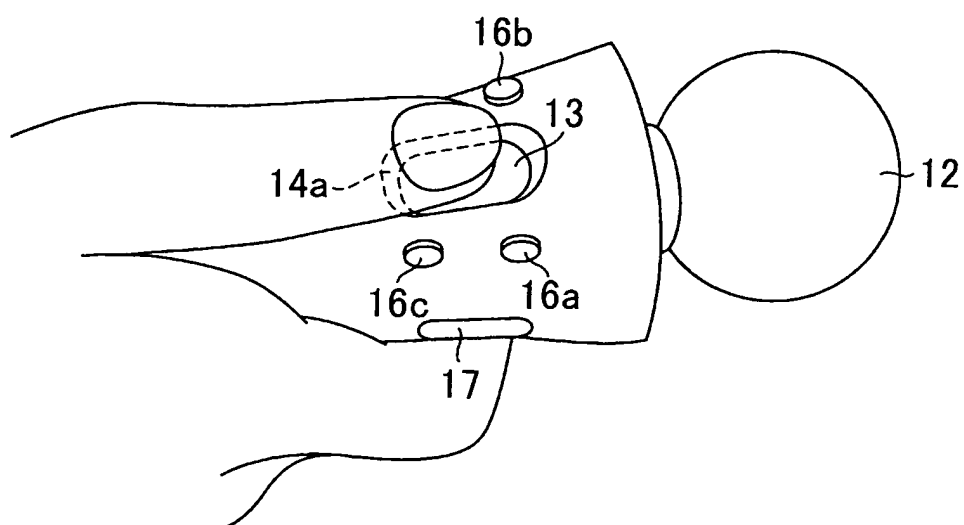


FIG.7



REFERENCES CITED IN THE DESCRIPTION

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